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boils be blown to them. If a man eats the liver of a female dog, or a woman eats that of a male dog, the face will break out in sores. He who is given to eating the calves of the legs of any species of animals will have a cramp in the muscles of his own legs. Tetons are forbidden to wear women's moccasins, lest when they meet their foes they cannot run swiftly. Children are not allowed to put inverted bowls on their heads, because such a practice will make them stop growing.

*Hunting-Lore.*—He who steps in or on a bowl or dish will fail to wound any game: so dishes are turned upside down when not in use. When one wishes to extract the marrow, he must not split the bone in two. A violation of this custom will cause lameness or frequent pains in the legs. Whoever breaks marrow-bones awkwardly cannot become a good marksman. The shoulder-blade of a buffalo calf, or that of a doe, is hung on the outside of a tent, just above the entrance, to insure success to the hunter a day or two later.

#### Interesting University Statistics.

Among the statistical tables that are to accompany the forthcoming annual report of the Bureau of Education, none are more interesting than those relating to the universities, colleges, and scientific schools of the United States. They are more valuable than ever this year, because they are based upon more complete returns from the institutions, and their value is greatly enhanced by the very intelligent discussion of the tables by Miss Annie Tolman Smith of the bureau, who prepared them.

One suggestive table gives the statistics of twelve of the leading institutions of the country. They are Yale, Columbian University (Washington), Johns Hopkins (Baltimore), Boston University, Harvard, Dartmouth College, College of New Jersey, Cornell University, Columbia College (New York), University of the City of New York, University of Pennsylvania, and Vanderbilt University (Nashville). Of this table, it is remarked that the foundations of the institutions named "illustrate every source from which the material equipments of the highest order of institutions are likely to arise, excepting State or national bounty. All of them have progressed far enough to be judged by their actual work, and nearly all of them have achieved more than national distinction.

"The undergraduate work of five of these institutions is carried on in colleges of arts and schools of science having their distinct faculties and students; in three, schools of science have distinct recognition, although the faculties and students are not reported separately from those of the college of arts; in the remaining four, the undergraduates are classified by the subjects or courses of study pursued.

"Graduate departments, not professional, are reported from ten of the institutions. Seven of the ten report also professional schools, as do the two that do not report a graduate department. The graduate students include 7 per cent, and the professional students 50 per cent, of the students of their respective institutions.

"Ten of the twelve foundations in question report productive funds amounting in the aggregate to \$24,567,745, which is 34 per cent of the total productive funds reported for all colleges of liberal arts, schools of science, and professional schools. The total receipts for the year as reported from ten of the institutions were \$2,474,463, which sum was made up as follows: income from productive funds, 52 per cent; receipts from tuition fees, 32 per cent; State appropriations, 1 per cent; other sources, 15 per cent."

Another table gives the statistics of twenty-four State universities. "Fourteen of the universities report graduate students, and seventeen report professional students, the number of the former being 2 per cent, and of the latter 35 per cent, of the students of their respective institutions.

"With a single exception, all the State universities report their productive funds, the aggregate amount being \$6,881,045. The total income reported for twenty-three of the universities is \$1,302,042. This amount was made up as follows: income from productive funds, 32 per cent; receipts from tuition fees, 11 per cent; from State appropriations, 49 per cent; from other sources, 8 per cent. Tuition fees, it will be seen, form but a small proportion of the aggregate income; the details show, further, that in three cases only do they represent a comparatively large part of the individual incomes.

"The attendance upon post-graduate courses in the State universities is small as compared with the same in the twelve universities referred to above. The number of graduate students in the latter is 55 per cent of the entire number of such students reported from all colleges and universities.

"As regards professional schools, theology has no representation in the State universities, and but four schools, with 272 students, in the universities first mentioned.

"The law schools in the table of State universities number 14, with 973 students; and in the twelve universities not supported at public charge, 8, with 1,262 students. The number of medical schools in the State universities is 11, with 969 students; and in the twelve first mentioned, 9, with 2,412 students. The remaining professional students are distributed in dental, pharmaceutical, and veterinary schools.

"The theological students of the twelve universities represent 4 per cent of all such students reported; the attendance upon law schools in both tables, 70 per cent of all law students reported; and the attendance upon the medical schools, 28 per cent of the medical students reported for the country at large."

In this connection, the following facts derived from another source may be interesting to the reader: In 1882-83 the total cost of the Prussian universities was, in round numbers, \$1,900,000. Of this sum, 9.3 per cent was their own earnings from tuition fees, etc.: the rest was the contribution of the State, 72 per cent being ordinary and the remainder extraordinary contributions,—for buildings, etc. In the same year the expenditure for gymnasien, including pro-gymnasien, was \$3,813,355. The combined expenditure for universities and gymnasien was, in round numbers, \$5,700,000.

#### Attendance upon Colleges and Scientific Schools.

A table is given showing the attendance upon the colleges and scientific schools of the country during the years 1875-76 and 1885-86, and the ratio which such attendance bore to the population at those dates. During the ten years there was a decrease of nine in the number of colleges, and an increase of ten in the number of scientific schools. The attendance upon the colleges at the later date was 7,072 greater than at the earlier period. The percentages of increase were 27 and 28 respectively, while the estimated increase of population during the same ten years was 25.

A comparative view of the relation of students to population by divisions shows an increase in the number of students as compared with population for colleges alone, and for both colleges and scientific schools, in the North Atlantic and North Central divisions of the country, and a decrease in the three remaining sections. It is only fair to remark that in making the computations for the South the colored population is included, and this brings the ratios of students to population down to 1 to 2,489 and 1 to 2,350 respectively in the two divisions of the South. If the blacks are excluded from the computation, the ratios of students in colleges to population in that section become 1 to 1,325 and 1 to 1,548 respectively, and the number in colleges and scientific schools combined 1 to 1,051 and 1 to 1,429.

#### HEALTH MATTERS.

##### Baldness.

THE cause of baldness, although long and diligently searched for, yet remains undiscovered. The theories to account for the loss of hair have been many and various. Mr. Eaton, in the *Popular Science Monthly*, attributed it to the wearing of tightly fitting hair coverings, living within doors, and keeping the hair closely cropped. He thinks, also, that this condition is exaggerated by the influence of heredity, and says that there is no reason why bald heads should not yield to the laws of heredity as much as curly or red heads. Mr. Gouinlock, in the same magazine, attributes baldness to the high hat and the hard felt hat, both of which constrict the blood-vessels which nourish the hair-bulbs. Dr. T. Wesley Mills, professor of physiology at McGill University, thinks that both of these views indicate the direction in which the truth lies, but that neither gets at it wholly. The degree to which such peculiarities as baldness are inherited is one of the most disputed matters. Exposure

of the body to sun and air has much to do with hair-production, as Mr. Eaton claims, and as to the truth of which any one may satisfy himself by leaving the arms or other portions of the body uncovered at the seaside or in the country.

Taking up the case against the stiff hat, Mr. Gouinlock explains how readily the arteries can be compressed, especially when the hair is cropped close. He thinks the fact that below the line of pressure the hair remains, while it disappears above it, is quite clear upon his theory; and, to account for the presence of hair over the temporal region when absent on the crown, he insists that here the temporal muscle acts as a cushion, preventing pressure. But this writer seems to forget that there are superficial and middle temporal arterial branches as well as deep ones, and that it is just these superficial ones (liable to pressure) that have most to do with supplying blood to the hair-bulbs. He also takes no account of other methods, besides pressure, by which blood can be cut off from a certain region. The familiar phenomena of blushing and pallor show that the nervous system has a controlling influence over the size of small arteries; and the fact that the hair may become gray in a few hours, under violent emotion, carries with it the lesson that in some way the nutrition of the hair is regulated by this same nervous system.

Dr. Mills says, that, to understand the physiological bearings of this subject, the somewhat complex relations of the blood-vessels of the brain, the face, the bones and muscles of the head, and of the scalp, must be borne in mind. The arteries of the brain find an outlet for their blood, when it has passed through the capillaries and done its work, in those peculiar venous channels lying on the inner tables of the skull known as 'sinuses.' These communicate with the veins of the softer osseous tissue (diploë) lying between the main tables of the cranial bones, which again have connections with the veins on the outside of the head. Now, it is plain, from this series of connections, that pressure on the scalp must influence the whole vascular system of the head back to the arteries of the brain, unless in some way counteracted. Pressure generally affects veins, from their superficial position, much more than arteries. The bad effects of venous dilation are seen in the slow-healing ulcers on the limbs of those with dilated (varicose) veins. Throughout his paper Mr. Gouinlock has directed his attention almost wholly to arteries rather than to veins. He has nowhere mentioned, what is commonly enough seen by the physician, that anastomotic arterial connections are especially opened up under the exigencies of disease, as from the pressure of tumors, etc.

Would Nature refuse to combat the hard hat? Could she not adapt to it in a greater degree than Mr. Gouinlock's theory supposes? In looking at a plate portraying the course of the arteries of the head, it will be noticed that the terminal branches mount to the vertex of the skull, and anastomose with their fellows of the opposite side by *very small* offshoots. As it is the smaller branches of arteries that are the most susceptible to changes in calibre,—can, in fact, be most readily influenced by the nervous mechanism,—it is easy to understand why that part of the scalp, with its hair-bulbs, supplied by them, should, either from pressure or from lessening of calibre in response to nervous influence, be the area most to suffer; hence the explanation of the fact that baldness of the vertex is the most marked. The great increase in the prevalence of all forms of nervous disease, and the modifications wrought in old forms of disease by the greater prominence of the nervous type of human being, point to the fact that our civilization makes calls upon the organization which tell especially on the nervous system. The strain of life falls in general, it will be conceded, most upon men. Man is the bread-winner: his anxieties, struggles, and disappointments are both many and severe; and man is often prematurely bald for the same reason that he is prematurely old in other respects. Woman is less so, because brain stress less frequently falls to her lot. But in connection with this must be taken, to complete the explanation, the fact, that, as with some races and some males of our own race, the vitality and persistence of the hair of the head in woman is specially marked. That overwork of the brain may influence the cephalic circulation (and so the hair) unfavorably, is evident enough from the dark circles beneath the eyes, owing to venous congestion, on the morning after unduly severe mental exercise, not to mention the headache from a similar cause; and it is

not surprising that the vertex of the head, with its relatively variable and feeble blood-supply, should suffer most,—in a word, that the overworked or overworried man should be bald,—unless, as in most women, there is unusual vitality of his hair-bulbs. Baldness is one more of the many warnings of our day,—one of Nature's protests against the irregular and excessive activity maintained in this restless age.

PLASTERING WINES.—The Society of Pharmacy of Bordeaux some time ago appointed a committee to examine into the subject of *plâtage*. This is a process in which plaster-of-Paris is added to wine both to clarify and preserve it. The effect of wine thus treated upon its consumers has long been a matter of doubt, some authorities regarding it as harmless, while others believed that such wine was injurious to health. The conclusions of this committee are as follows: 1. In the present state of viticulture in the south of France and in Algeria, the plastering of wines in the mash is almost always necessary, in order to give the wines the marketable qualities sought after by consumers; 2. Facts are wanting to show that plastered wines are injurious to health; 3. The experience of numerous populations that drink only plastered wine, the experience of the many strangers who are continually travelling through the south of France and Algeria, drinking hardly any thing else than plastered wine, and methodical experiments by learned bodies, show that potassium sulphate in the proportion of sixty grains to the litre of wine produces no appreciable effect on the various functions of the economy; 4. The plastering of wines in the mash to the extent of producing this proportion of potassium sulphate may be authorized until facts rigorously deduced from extensive scientific experiments show the dangers or inconveniences of this amount as regards the public health. The Academy of Medicine, through a committee, has been investigating the same subject, and its conclusions are as follows: 1. The testimony and the facts analyzed in the present report demonstrate that excessive plastering exerts an injurious influence on the public health; 2. From the exclusive point of view of hygiene, the commission cannot approve of the principle of the plastering of wines; 3. Nevertheless in view of the producers' and dealers' necessities, and especially taking the consumers' interest into account, it thinks that it would be imprudent to exclude from the market during certain years, by too absolute a measure, wines which thus far nothing but moderate plastering has proved capable of preserving; 4. Considering that, if potassium sulphate is a natural constituent of pure wines, it never exists in them in a proportion above sixty centigrams to the litre, as analysis shows; that it has not been directly proved that potassium sulphate, even in the proportion of two grams to the litre of wine, has any noxious influence on health, but that it is necessary to fix the maximum of potassium sulphate which may, without appreciable danger, be produced in wine by plastering,—the commission is of the opinion that the presence of potassium sulphate in the wines of commerce, whatever may be its origin, ought not to be tolerated beyond the maximum limit of two grams to the litre. The commission urges that the regulation formerly in force should be carried out strictly.

ORGANIC POISONS.—At the fifth annual meeting of the New York State Medical Association, held at Albany in October, the subject of ptomaines, leucomaines, and extractives, was discussed by several of the members. In speaking of the composition of ptomaines, Prof. Elwyn Waller of New York said that the presence of nitrogen, sulphur, and phosphorus had been determined. They were volatile unstable bodies, some of which could be represented chemically as ammonia in which more or less hydrogen was replaced by the radical  $\text{CH}_3$ , forming dimethylamine, trimethyldiamine, etc. Their action in the case of the poisonous members of the series when taken into the living body resembled that of the pyridic bases. Some produced a rapid dilatation of the pupil and weakening of the nervous centres, others loss of muscular contractility, others loss of cutaneous sensibility, others a slow action of the heart, others convulsions, others somnolence and torpor, and others pallor with profuse flow of the secretions. He thought that the ptomaines of cholera and typhoid had been found beyond much doubt. All ptomaines, leucomaines, and extractives were converted albumens. Leucomaines were midway between ptomaines and extractives, without definite boundaries between them. They were

divided into groups named uric and creatinic, from resemblances to urea and creatinine respectively. Sixteen were known. All represented progressive changes in albumen. All but one contained oxygen. They had been found in expired air, saliva, blood, brain, urine, pus, and the digestive tract. The progressive changes being interfered with so that retention occurred at some intermediate stage, or by-forms arising as a result of the interference, diseases might at once be produced. The neutralization of these products, even where made by bacteria, must, he thought, be more important than the destruction of the micro-organisms. Dr. N. B. Sizer of Brooklyn stated that canned meats usually owed their poisonousness to the presence of ptomaines, and not to the action of the soldering fluid used. In one instance canned apricots had contained a poison due to some alteration by decay, and resembling tyrotoxin in its effects. It had killed the child of a nursing mother in a few hours, the mother in forty-three hours, and, after an illness of six days, the father also.

#### BOOK-REVIEWS.

*The Civilisation of Sweden in Heathen Times.* By OSCAR MONTELIUS. Tr. by F. H. WOODS. London and New York, Macmillan. 8°. \$4.

PROFESSOR MONTELIUS'S excellent summary of the researches on prehistoric man in Sweden is well known to students of archæology, and an English translation of this standard work is highly welcome. The numerous cuts which illustrate the descriptions are of high order, and give particular interest to the handsomely printed book. Mr. Woods had the advantage of the co-operation of the author in translating the work, and thus the translation has become an enlarged edition. All the new matter and new plates that had been added to the German translation of 1885 have been incorporated in the English translation, and the results of recent investigations up to 1888 have been embodied in it. The number of plates has thus been swelled to two hundred and five. The book is pleasantly written, and unrolls a picture of the stone age, the bronze age, and the iron age so far as we are able to reconstruct it from the finds. The description of the last age fills almost two-thirds of the book. Professor Montelius assumes the end of the stone age to be about B.C. 1500. He describes the implements which were in principal use, and the methods of working stone; of chipping flints; and of making perforations by means of a stick and sand and water. A series of excellent cuts shows a great variety of unpolished and polished stone implements, axes, spear-heads, arrow-heads, knives, flint saws, etc. As remains of the earlier stone age are scanty in Sweden, the author dwells more particularly on the latter part of this age, and describes some of the most beautiful implements that have been found. The reader will, however, be particularly interested in the description of the mode of life of the people of this period, in which the author sums up the results of long-continued investigations. He describes the methods of hunting and fishing of this ancient race, their domestic animals, their clothing, and the probable existence of the beginnings of agriculture.

About the year B.C. 1500 the first bronze implements were introduced, and about the same time the first gold ornaments appear. As the forms of burial in the later stone age and the early bronze age are very much alike, Professor Montelius assumes that no immigration took place, but that the new art was introduced by intercourse with neighboring peoples. The bronze age is divided into two sections, characterized by peculiar ornamentations and different modes of burial. We cannot undertake to summarize the author's views, nor his terse description of the culture of each period, illustrated by cuts representing typical specimens and some of the important rock-carvings which are so numerous in Sweden.

The iron age is not absolutely prehistoric, numerous foreign coins being found along with remains of this age. Thus four periods are distinguished, the first reaching to the beginning of the Christian era, the second to the beginning of the fifth century. At this time the later iron age begins, the first part of which extends to the eighth century, while the latter terminates with the introduction of Christianity. In this part of the book the invention of the runes, and their connection with the Roman alphabet, are treated at some

length. The accounts of the subdivisions of the iron age are fuller than the preceding chapters, as the finds are far more numerous, and illustrative of aspects of life of which no traces have been preserved in the stone and bronze periods.

Although the book deals only with the progress of the early inhabitants of Sweden, it is not less interesting, as all archæology tends to show that there has been a remarkably similar process of development, not only among European peoples, but among all races of the world. Therefore the author's clear and succinct account of the progress of this people will give the student a clear notion of the successive stages of civilization through which man has passed.

*Experimental Mechanics.* By Sir ROBERT STAWELL BALL, LL.D. London and New York, Macmillan. 12°. \$1.50.

THIS volume is a revised edition of a course of lectures on experimental mechanics delivered some years ago at the Royal College of Science at Dublin to a large evening class consisting chiefly of artisans. The better to adapt his methods to the needs of so practical an audience, the subject has been so treated, that, for its ready comprehension, no knowledge of mathematics is required beyond an acquaintance with the rudiments of algebra and with a few geometrical terms and principles. The elementary laws of mechanics are well and clearly illustrated by simple experiments, the material for many of them being drawn from commonplace sources. Without at any time passing the limits set by the circumstances under which the lectures were delivered, Professor Ball has succeeded in presenting his subject in a lucid and extremely interesting manner.

#### AMONG THE PUBLISHERS.

D. APPLETON & Co. announce for this week 'The Florida of To-Day,' by James Wood Davidson, intended for settlers and tourists, giving the geography, climate, history, routes of travel, the geology, productions, sports, etc., describing the population, education, employments, etc., and including full list of hotels, and railway and county maps printed in colors. This is an entirely new work on this popular winter resort. 'Appletons' Handbook of American Winter Resorts,' revised for 1888 to 1889, will also be ready, with illustrations, railway time-tables and fares, maps, etc., brought down to latest date. A most useful guide for invalids and tourists.

— Robert Clarke & Co. of Cincinnati have in press, and will shortly issue, an octavo of 250 pages with the following title: 'Know Thyself: A Study of Man,' by a well-known Cincinnati physician, Dr. J. D. Buck. The book contains an outline of general biology and physiology, upon which the higher problems are based, and from which the true science of psychology must proceed.

— J. B. Lippincott Co. have in press a 'Life of Henry M. Stanley,' by H. W. Little; a 'History of the celebration of the One Hundredth Anniversary of the Promulgation of the Constitution of the United States,' edited by Hampton L. Carson; and 'A Shocking Example, and Other Sketches,' by Frances Courtney Baylor.

— *The Cosmopolitan* magazine has been purchased by John Brisben Walker, who will be remembered as the founder of the *Inter-Ocean*. Mr. Walker is establishing new headquarters at 363 5th Avenue, New York.

— J. W. Bouton, New York, will publish early next year a work on 'Remarkable Bindings in the British Museum,' for which Mr. H. B. Wheatley has prepared the text, and which is to contain sixty photogravure plates. "This is evidently intended," says the *Nation*, "to do for the British collection what M. Bouchot's sumptuous work did for the French; and, in recognition of the fact that the French interest in the art of bookbinding is greater than the English, there will be a simultaneous edition published in French by MM. Gruel and Englemann. The edition is limited to two hundred copies in English and two hundred in French.

— *The Princeton College Bulletin* is the title of a new quarterly publication to be issued from Princeton College. It will be philosophical, scientific, and literary in character, with President Patton as general editor, assisted in the various departments by several others.